UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/638,169	08/11/2000	Darrell Duffy	20820.P092	8013

7590 10/28/2004

Thomas C Webster
Blakely Sokoloff Taylor & Zafman LLP
7th Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025

EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/638,169	DUFFY ET AL.	
	Examiner	Art Unit	
	Ian N Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *the amendment filed on 16 Auguest 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/04,8/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This is in response to amendment filed on 8-16-2004.

2. Claims 23-30 are pending.

Response to Arguments

3. Applicant's arguments with respect to claims 23-30 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 23-30, the applicant argued that, "...Olkin does not disclose or suggest a system with a plurality of intermediates which have retry timer... a source node...Olkin does not even mention the concept of intermediate nodes with retry timers..." in page 7 and "...Buskens does not discloses or suggest a system with a plurality of intermediates which have retry timers...a source node..." in page 8.

In response to applicant's argument, as recited in previous office action, examiner clearly states that Buskens discloses a system with a plurality of intermediates and a source node which have retry timers. As shown in Buskens FIG. 1, examiner asserts DRs (105 and 104) as intermediate nodes between Sender S and receiver R. Each DR contains a Reliable Multicast Transport Protocol, RMTP, T_retx timer; and RMTP is the state machine which programs/controls the retransmission timer; see col. 4, lines 22-54. Olkin teaches that retransmission timers/times can be adjusted based upon the round trip distance/time. Note that round trip time is calculated based upon the distance; see col. 7, lines 6-12. Thus, it is clear the Buskens teaches the above argued limitations.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In particular, Buskens discloses DR 104 and 105 (i.e. intermediate nodes) and their respective T_retx timers. DR 104 and DR 105 are located between Sender S and receiver R. Thus, the intermediate node 104 which located far away from the source node has a retry time period (i.e. time interval between node 104 and receiver) can be adjusted relatively smaller than intermediate node 105 located relatively closer to the source node (i.e. time interval between node 105 and receiver).

Therefore, when considering the combination of Buskens and Olkin as whole, one skilled in the art would have been motivated to modify the system of Buskens, the purpose of adjusting retransmission time/timer based upon the distance, since Olkin states in col. 7, line 10-11 that such modification would avoid retransmission based on a particular link that is slower than the others. The motivation being that by utilizing separate timer for each intermediate node, it can further reduce end-to-end delay and improve latency.

The applicant request that, "...applicant request requests the examiners cite reference in support of his position..." in page 8.

Regarding the official noticed taken by the examiner, Majd (U.S. 6,587,974) teaches the length of the transmission with regards to transmission/retransmission time, as recited below, see col. 1, lines 35-45.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 recites the limitation "**the** next intermediate node" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 27 is also rejected for the same reason as stated above in claim 23.

Claim 23 recites, "**a** data packet" in line 10. It is unclear whether "**a** data packet" recites in line 10 is the same as "**a** data packet" in line 2.

Claim 27 is also rejected for the same reason as stated above in claim 23.

Claim 23 recites is "**said** data packet" in line 12. It is unclear whether "said data packet" recites in line 12 refers to "**a** data packet" in line 2 or "**a** data packet" in line 10.

Claim 27 is also rejected for the same reason as stated above in claim 23.

Claim 24 recites, "**the** data packet" in line 2. It is unclear whether "the data packet" refers to "**a** data packet" in line 2 or "**a** data packet" in line 10 of claim 23.

Claim 28 is also rejected for the same reason as stated above in claim 24.

Claim 25 recites, "**the** data packet" in line 5. It is unclear whether "the data packet" refers to "**a** data packet" in line 2 or "**a** data packet" in line 10 of claim 23.

Claim 29 is also rejected for the same reason as stated above in claim 25.

Claims 26 and 30 are also rejected since they are deepened upon rejected claims 23 and 27.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 23-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buskens (U.S. 5,905,871) and Majd (U.S. 6,587,974), in view of Olkin (U.S. 6,310,892).

Regarding claims 23 and 27, Buskens discloses a system performing the method comprising:

a source nodes (see FIG. 1, Sender S (or) a root node; col. 3, line 16) to transmit a data packet to a target node (see FIG. 1, Receiver R (or) a leaf node; col. 3, line 18);

a plurality of intermediate nodes (see FIG. 1, Routers RT with designated receiver functionality DR); communicatively coupled in succession between the source node and the target node (see col. 3, lines 14-18; note that each router RT couples in series/succession between root node S and receiver R),

each of the intermediate nodes receive the data packet from either the source node (see FIG. 1, Sender S) or a previous intermediate node in succession (see FIG. 1, RT), and transmit the data packet to either the next intermediate node in succession (see FIG. 1, RT) or to the target node (see FIG. 1, R); see col. 3, lines 1-18,

each of the intermediate nodes and the source node having a programmable retry timer (see Fig. 2, Reliable Multicast Transport Protocol, RMTP, T_retx timer) associated therewith (see col. 4, lines 22-54; note that sender, receiver and router/DR utilizes RMTP retransmission timer; see col. 4, lines 54-67; see col. 8, lines 19-20; see col. 3, lines 1-12);

each retry time programmed with a retry time period (see FIG. 2, RMTP retx timer with a time interval/cycle/period; col. 11, line 40-57; note that various timers are used in the sender and DR with time interval/period) after which the intermediate node or the source-node will retransmit a data packet if the intermediate node or the source node has not received an appropriate response to said data packet (see Fig. 3A, Sender scheduler implemented in source node and RT/DR nodes, T_retx expires at step 303; col. 4, line 28-39; col. 6, line 46 to col. 7, line 14, and col. 5, line 43-67;; note that retransmission from Sender/RT/DR occurs upon receiving a status acknowledgement packet(s) and/or expiration of retransmitting timer from receivers and/or designated receivers);

the source node and the intermediate node to employ a transaction control scheme (see FIG. 2, RMTP protocol; see col. 4, lines 23-26; note the sender and RT/DR utilizes RMTP protocol);

wherein the retry timer of the source node is programmed with a retry time-period, and wherein the retry timer of the intermediate node is programmed with a retry time-period (see FIG. 2; col. 11, line 40-57; note that various timers are used in the sender and DR with different time interval/period), and

intermediate node (see FIG. 1, RT/DR 104) located relatively further in succession from the source node (see FIG. 1, Node S, note that RT/DR 104 further away in series from

Sender node S), and the intermediate node (see FIG. 1, RT/DR 105) located relatively closer in succession to the source node (see FIG. 1, Node S, note that RT/DR 105 is nearer/closer in series from Sender node S); see col. 3, lines 1-65.

Buskens '871 does not explicitly disclose wherein the source node has a relatively larger time period than any of the intermediate nodes.

However, this limitation is Majd. Majd teaches that wherein the source node has a relatively larger retry time period than any of the intermediate nodes (see col. 1, lines 35-50; the greater the length of the transmission/retransmission path, the longer time it will take a signal to propagate/retransmit/retransmit). Thus, the longer the distance, the longer the time is required to retransmit. In particular, it is obvious that retransmission distance from the sender S to the receivers R is longer than the distance from the intermediate nodes RT/DR to the receivers, upon receiving negative acknowledgement and/or after time-out (see Buskens FIG. 1). Since the intermediate nodes (i.e. RT/DRs) are located between the receiver and the sender, the time to reach from the sender to the receiver is longer than the time to reach from the intermediate node to the receiver. Thus, it is obvious that source node retry time period (i.e. time interval between Sender and Receiver) is longer than any of the intermediate retry time period (i.e. time interval between any intermediate node and Receiver).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens '871 as taught Majd for the purpose of overcoming acknowledgement imposing problem by having one retransmission time interval is longer than the other base upon the distance. The motivation being that by utilizing separate timer for intermediate node, which is capable of sending and receiving on

behalf of the sender, it can reduce end-to-end delay and improve latency; see Buskens col. 3, lines 44 to col. 4, lines 54.

Buskens '871 does not explicitly disclose wherein intermediate node located relatively further from the source node has a relatively smaller time periods than intermediate nodes located relatively closer to the source node.

However, these limitations are taught by Olkin and Majd. In particular, Olkin and Majd disclose wherein intermediate node located relatively further from the source node has a relatively smaller retry time periods than intermediate nodes located relatively closer to the source node (see Olkin col. 7, lines 6-12). Olkin teaches that retransmission timer/time can be adjusted (i.e. smaller or larger) based on round trip time in order to adapt the existing network conditions. In addition, Majd teaches that the longer the distance, the longer the time is required to transmit/propagate/retransmit. Thus, the intermediate node 104 which located far away from the source node has a retry time period (i.e. time interval between node 104 and receiver) can be adjusted relatively smaller than intermediate node 105 located relatively closer to the source node (i.e. time interval between node 105 and receiver), per Olkin and Majd.

However, this limitation is taught by Olkin. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Buskens and Majd, as taught by Olkin for the purpose of adjusting to be smaller or larger retransmission time/timer of the node based upon the distance, since Olkin states in col. 7, line 10-11 that such modification would avoid retransmission based on a

particular link that is slower than the others. The motivation being that by utilizing separate timer for each intermediate node, it can further reduce end-to-end delay and improve latency.

Regarding claims 24 and 28, Buskens discloses wherein the retry time periods of each of the retry timers of said intermediate nodes are set by the data packet transmitted from the source node (see col. 11, line 58 to col. 12, line 10; note that the retransmit timers/time interval/period (T_retx) are set base upon T_send timer, which is triggered by the sender during packet transmission towards each intermediate node. Also, it is well known in art of packet transmission that both sender and intermediate nodes must keep track of the packet's departure and arrival within a predetermined sliding window size (i.e. timer or duration) during transmission in order to retransmit missing or lost packets and provide reliable service. Therefore, it is clear that a packet transmitted from a sender must set the retransmission timer at each intermediate node.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens as taught by Olkin and Majd in art for the same reason stated in Claim 23 and 27 above.

Regarding claims 25 and 29, the combined system of Buskens, Majd, and Olkin teaches that the retransmit time of the sender/source node is longer than any of the intermediate nodes, and the intermediates node that is further away from source node have smaller retransmit time than the intermediate node closer to the source node, as described in claim 23 and 27 above.

Buskens discloses wherein the source node is configured to attempt to retransmit the data packet relatively more times than any of the intermediate nodes (see Buskens '871 col. 7, line 1-26; note that a sender retransmits missing/lost packet per request from the both receivers and intermediate RT/DRs. Per Fig. 3A, the retransmission occurs a number of times until the request from both receiver and RT/DRs receive all requested packets. Thus, it is clear that the number of retransmit time from the sender/source node must be more (i.e. FIG. 1, 4 times for four RT/DRs and 4 times for four receivers, thus total 8 times) than intermediates RT/DR 104 (i.e. FIG. 1, 4 times for four receivers)); and

wherein intermediate nodes located relatively further in succession from the source node are configured to attempt to retransmit the data packet relatively fewer times than intermediate nodes located relatively closer in succession to the source node (see Buskens '871 col. 7, line 1-26 and see Fig. 3A; note that each intermediate RT/DR retransmits missing/lost packet per request from the receiver. Also, intermediate RT/DR nodes are in series between the source/sender and the plurality of receivers. Thus, it is clear the number of retransmission time from RT/DR node 104 (i.e. FIG. 1, 4 times for four receivers), which is further away in series from the source/sender, occurs lesser than RT/DR node 105 (i.e. FIG. 1, 1 time for a RT/DR 104 and 4 times for four receives, thus total 5 times), which is closer in series to the sender.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Buskens and as taught by Olkin and Majd teaching in art for the same reason stated in Claim 23 and 27 above.

8. Claims 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buskens, Majd, Olkin as applied to claim 23 and 27 above, and further in view of Pierson (U.S. 6,621,833)

Regarding claim 26 and 30, the combined system of Buskens, Olkin, and Majd discloses intermediate nodes receiving data packet as described above in claims 23 and 27.

Neither Buskens, Olkin, nor Olkin explicitly discloses repeater nodes configured to amplify signal strength (see Pierson'833 col. 4, line 24-26; note that repeaters nodes are used to re-amplify the signal strength in order to prevent signal attenuation (i.e. loss of signal strength)).

However, this limitation is taught by Pierson'833. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Buskens, Olkin, and Majd, as taught by Pierson'833 for the purpose of providing the intermediate nodes with the repeaters functionality which amplify/re-amplify the signal strength, since Pierson'833 states in col. 25-26 that such modification would prevent loss of signal strength as a signal travels down a link. The motivation being that by amplifying/re-amplifying the signal, it can reduce the signal distortion and prevent loss of signal strength.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 571-272-3085. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
10/25/04

BRIAN NGU
PRIMARY EXAMINER